

interface housing. In a second mode, the display module interface housing may be folded behind the display screen of the display module, and the folded display module may be inserted into a host device interface cavity. A host device adapted to this second mode, such as a watch wristband, includes a housing and an interface cavity in the housing to receive the folded display module. In either embodiment, the display module can be removed from the host device and subsequently coupled to a different host device without loss of important data stored in the display module memory.

[0034] In a preferred embodiment, the display module can couple to a host device both for mechanical support and for data transfer. The host device can mechanically receive the display module either with an extended display module interface inserted into a slot in the host device housing, or with a folded interface in which the back of the display module may be received into a cavity on the host device housing. The host device can achieve data communication with the display module via either electrical contacts or an optical interface, such as an infrared interface. Preferably the host device uses a Secure Digital (SD) interface for data communication with the coupled display module.

[0035] Referring to FIG. 1, display module 10 is shown as an accessory for handheld computer 100. Handheld computer 100 may include Palm™ computers and other devices available from Palm, Inc., of Santa Clara, California. Other exemplary embodiments of the invention may relate to Windows CE handheld computers, or other handheld computers and personal digital assistants (PDAs), as well as mobile telephones, beepers, electronic books (e-books), and other electronic and non-electronic devices.

[0036] Preferably handheld computer 100 includes interactive hardware and software that performs functions such as maintaining

calendars, phone lists, task lists, notepads, calculation applications, spreadsheets, games, and other applications capable of running on a computing device. Handheld computer 100, as depicted in FIG. 1, includes a plurality of input functions, keys 105 and a display 110 having graphical user interface features. Display 110 may be provided with an interface that allows a user to select and alter displayed content using a pointer, such as, but not limited to, a stylus which may be stowed in a stylus slot 115 of housing 120 of handheld computer 100. To permit functional expansion, handheld computer 100 further includes an interface slot 130 in housing 120 for coupling to a variety of accessory devices.

[0037] The display module of the present invention can function as an accessory device with a variety of host devices, including a handheld computer. Referring to an exemplary embodiment depicted in FIG. 1, a display module 10 may be connectable to handheld computer 100 as an accessory device. The display module 10 couples to the interface slot 130 in housing 120 of handheld computer 100. In an exemplary embodiment, display module 10 may be based on the Secure Digital (SD) interface which is a standard using devices approximately the size of a conventional postage stamp. Consequently, the display module may be also of suitable size to be ergonomically compatible with handheld devices.

[0038] In an exemplary embodiment, interface slot 130 includes a connector arranged to comply with the SD standard. In operation, a user of handheld computer 100 couples display module 10 to interface slot 130 by sliding an interface housing 150 into interface slot 130 where an electrical connection may be made between a connector on the display module and an SD connector of handheld computer 100. In an alternative embodiment, inserting interface housing 150 into interface slot 130 aligns

optical transceivers, thereby forming, for example, an infrared (IR) link for transferring data. In similar fashion, the display module of the present invention can couple to a variety of other types of host devices that are configured with an arrangement corresponding to interface slot 130 of handheld computer 100. Further, in an alternative embodiment an RF communications link may be made between RF transceivers in both the host device, such as handheld computer 100 and display module 10 for transferring data between the two devices.

[0039] Referring to FIG. 2, an exemplary embodiment of display module accessory device 10 is shown. Display module 10 includes a display housing 160 that encompasses the edges of a display screen 170. Display screen 170 displays information, including text and graphics, to the user. Display housing 160 is hingeably or rotatably coupled to interface housing 150. Interface housing 150 provides support for electrical interconnects 180 which make electrical contact with a connector in handheld computer 100 or other host device. Electrical interconnects 180 are formed on interface housing 150 such that they are exposed both when interface housing 150 is folded and when interface housing 150 is extended.

[0040] Referring to FIGs. 3A-3C, an exemplary embodiment of display module accessory device 10 is depicted. Because display module housing 160 is hingeably connected to interface housing 150, the user can vary the angle between them. Interface housing 150 can be fully extended, as depicted in FIG. 3A. Interface housing 150 can also be partially folded, as depicted in FIG. 3B. Furthermore, interface housing 150 can also be fully folded, as depicted in FIG. 3C. In an exemplary embodiment, a user can adjust the display screen angle while display module 10 is coupled to a host device, such as handheld computer 100 in FIG. 1. In a particularly preferred